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From the INTERNATIONAL SEARCHING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT AND  
THE WRITTEN OPINION OF THE INTERNATIONAL  
SEARCHING AUTHORITY, OR THE DECLARATION

To:  
FISH & RICHARDSON P.C.  
Attn: Daley, Sean P.  
225 Franklin Street  
Boston, Massachusetts 02110-2804  
UNITED STATES OF AMERICA

(PCT Rule 44.1)

RECEIVED

JUL 19 2004

Date of mailing  
(day/month/year)

15/07/2004

Applicant's or agent's file reference

14074-014W01

FISH & RICHARDSON P.C.  
BOSTON OFFICE

FOR FURTHER ACTION

See paragraphs 1 and 4 below

International application No.

PCT/US2004/004991

Docketed By Billon

International filing date

(day/month/year)

20/02/2004

Applicant

METABOLIX INC.

Due Date:

Deadline:

Initials:

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

**Filing of amendments and statement under Article 19:**

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

**When?** The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

**Where?** Directly to the International Bureau of WIPO, 43 chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.  
☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

**4. Reminders**

Shortly after the expiration of 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise, the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the PCT Applicant's Guide, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the International Searching Authority



European Patent Office, P.B. 5818 Patentlaan 2  
NL-2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Wolfgang Borinski

## NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

### INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

#### What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

#### When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

#### Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

#### How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

#### What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

## NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:  
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:  
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:  
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or  
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:  
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

### "Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)".

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

### Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(e), first sentence).

### Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>14074-014WO1</b>	<b>FOR FURTHER ACTION</b>		see Form PCT/ISA/220 as well as, where applicable, Item 5 below.
International application No. <b>PCT/US2004/004991</b>	International filing date (day/month/year) <b>20/02/2004</b>	(Earliest) Priority Date (day/month/year) <b>21/02/2003</b>	
Applicant <b>METABOLIX INC.</b>			

This International Search Report has been prepared by this international Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 9 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regards to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. \_\_\_\_\_



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 C09J167/04 C08L67/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C08L C09J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>IANNACE S ET AL: "POLY(3-HYDROXYBUTYRATE)-CO-(3-HYDROXYVALE RATE)/POLY-L-LACTIDE BLENDS: THERMAL AND MECHANICAL PROPERTIES" JOURNAL OF APPLIED POLYMER SCIENCE, JOHN WILEY AND SONS INC. NEW YORK, US, vol. 54, no. 10, 5 December 1994 (1994-12-05), pages 1525-1535, XP000514124 ISSN: 0021-8995 the whole document</p> <p>----- -/-</p>	<p>1-7,9, 30-35, 44-49, 52-64, 69-75,80</p>

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

\*A\* document member of the same patent family

Date of the actual completion of the international search

6 July 2004

Date of mailing of the international search report

15/07/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel: (+31-70) 340-2040, Tx. 31 651 epo nl  
Fax: (+31-70) 340-3016

Authorized officer

Masson, P

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 191 037 A (DOI YOSHIHARU ET AL) 2 March 1993 (1993-03-02)  column 1, line 24 - line 26 column 2, line 3 - line 20; claims; examples	1-8, 30-49, 52-64, 69-80
X	MIGUEL O ET AL: "Blends of bacterial poly(3-hydroxybutyrate) with synthetic poly(3-hydroxybutyrate) and poly(epichlorohydrin): transport properties of carbon dioxide and water vapour" POLYMER, ELSEVIER SCIENCE PUBLISHERS B.V, GB, vol. 42, no. 3, February 2001 (2001-02), pages 953-962, XP004218064 ISSN: 0032-3861 the whole document	1,59,64, 80
X	MALLARDE D ET AL: "Hydrolytic degradability of poly(3-hydroxyoctanoate) and of a poly(3-hydroxyoctanoate)/poly(R,S-lactic acid) blend" POLYMER, ELSEVIER SCIENCE PUBLISHERS B.V, GB, vol. 39, no. 15, 1 July 1998 (1998-07-01), pages 3387-3392, XP004122248 ISSN: 0032-3861 the whole document	1,59,64, 80
X	TSUJI H ET AL: "BLENDS OF CRYSTALLINE AND AMORPHOUS POLY(LACTIDE). III. HYDROLYSIS OF SOLUTION-CAST BLEND FILMS" JOURNAL OF APPLIED POLYMER SCIENCE, JOHN WILEY AND SONS INC. NEW YORK, US, vol. 64, no. 7, 14 February 1997 (1997-02-14), pages 855-863, XP000722889 ISSN: 0021-8995 the whole document	1,59,64, 80

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## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US2004/004991

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HIDEKI ABE ET AL: "SYNTHESIS AND CHARACTERIZATION OF POLYU(R,S)-3-HYDROXYBUTYRATE-B-L-HYDROXYHEXANOATE AS A COMPATIBILIZER FOR A BIODEGRADABLE BLEND OF POLYU(R)-3-HYDROXYBUTYRATE AND POLY(6-HYDROXYHEXANOATE)" MACROMOLECULES, AMERICAN CHEMICAL SOCIETY. EASTON, US, vol. 27, no. 21, 10 October 1994 (1994-10-10), pages 6012-6017, XP000474772 ISSN: 0024-9297 page 6012 - page 6014; tables	1-16, 20-80
X	EP 0 826 803 A (TAKASAGO PERFUMERY CO LTD) 4 March 1998 (1998-03-04) page 2, line 51 - page 3, line 26; claims; examples	1,59,64, 80
X	SCANDOLA M ET AL: "POLYMER BLENDS OF NATURAL POLY(3-HYDROXYBUTYRATE-CO-3-HYDROXYVALERATE) AND A SYNTHETIC ATACTIC POLY(3-HYDROXYBUTYRATE). CHARACTERIZATION AND BIODEGRADATION STUDIES" MACROMOLECULES, AMERICAN CHEMICAL SOCIETY. EASTON, US, vol. 30, no. 9, 5 May 1997 (1997-05-05), pages 2568-2574, XP000688331 ISSN: 0024-9297 page 2568, right-hand column - page 2569, left-hand column; table 1	1,59,64, 80
X	US 5 693 389 A (LIGGAT JOHN JAMIESON) 2 December 1997 (1997-12-02) column 1, line 6 - line 27 column 1, line 38 - column 2, line 55; claims; examples	1,59,64, 80
X	WO 02/077080 A (PROCTER & GAMBLE) 3 October 2002 (2002-10-03) paragraph '0011! claims; examples 1,2	1,59,64, 80
X	WO 02/085983 A (DU PONT ; FUGULY GARRET D (US)) 31 October 2002 (2002-10-31) page 3, line 7 - page 5, line 19 page 7, line 10 - line 22; claims; examples	1,59,64, 80
X	EP 0 890 614 A (GUNZE KK) 13 January 1999 (1999-01-13) page 3, line 3 - line 22; claims; examples	1,59,64, 80

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## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US2004/004991

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 450 777 A (AGENCY IND SCIENCE TECHN) 9 October 1991 (1991-10-09) column 1, line 31 - line 55 column 4, line 20 - line 28; claims; examples 1,2 column 1, line 21 - line 26	1,59,64, 80
X	WO 02/50156 A (MELIK DAVID HARRY ; SATKOWSKI MICHAEL MATTHEW (US); AUTRAN JEAN-PHILIP) 27 June 2002 (2002-06-27) page 1, line 14 - line 15; claims; examples page 3, line 6 - line 9 page 3, line 20 - line 22 page 9, line 2 - page 11, line 26 page 14, line 25 - line 27	1,59,64, 80
X	US 2002/143116 A1 (MELIK DAVID HARRY ET AL) 3 October 2002 (2002-10-03) paragraphs '0010', '0046!; claims; examples	1,59,64, 80
X	WO 02/059201 A (PONTI ROBERTO ; BASTIOLI CATIA (IT); GUANELLA ITALO (IT); NOVAMONT SPA) 1 August 2002 (2002-08-01) page 3 - page 4 page 6, paragraph 4; claims	1,59,64, 80
X	US 6 221 316 B1 (SCHECKLIES ELVIRA ET AL) 24 April 2001 (2001-04-24) the whole document	1-80
X	WO 96/08535 A (PROCTER & GAMBLE) 21 March 1996 (1996-03-21) page 43, line 25 - page 44, line 29	1,59,64, 80
A	US 6 191 203 B1 (PIERRE JEAN R ET AL) 20 February 2001 (2001-02-20) the whole document	1-80
A	US 6 228 954 B1 (MUTH ROSS R ET AL) 8 May 2001 (2001-05-08) the whole document	1-80
A	DE 43 00 420 A (BASF AG) 14 July 1994 (1994-07-14) the whole document	1-80
A	US 5 646 217 A (HAMMOND TIMOTHY) 8 July 1997 (1997-07-08) column 1, line 20 - column 2, line 25 column 5, line 17 - line 18	81

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## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US2004/004991

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 95/10577 A (FULLER H B LICENSING FINANC) 20 April 1995 (1995-04-20) page 2, line 32 - page 3, line 10 tables 1-3 -----	81
A	WO 02/28969 A (AUTRAN JEAN PHILIPPE MARIE : PROCTER & GAMBLE (US)) 11 April 2002 (2002-04-11) page 1, line 17 -----	81
X	EP 1 193 294 A (TOHCELLO CO LTD) 3 April 2002 (2002-04-03) paragraphs '0007! - '0013! page 4, line 19 - line 21 -----	81

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No.

PCT/US2004/004991

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5191037	A	02-03-1993	JP 6184418 A	05-07-1994
EP 0826803	A	04-03-1998	JP 10060099 A EP 0826803 A2	03-03-1998 04-03-1998
US 5693389	A	02-12-1997	AU 683466 B2 AU 6727594 A CA 2162173 A1 EP 0700418 A1 FI 955645 A WO 9428070 A1 JP 8510498 T NO 954748 A	13-11-1997 20-12-1994 08-12-1994 13-03-1996 23-11-1995 08-12-1994 05-11-1996 23-11-1995
WO 02077080	A	03-10-2002	US 2002143116 A1 US 2002143136 A1 BR 0208376 A BR 0208377 A CA 2440544 A1 CA 2440545 A1 EP 1373378 A1 EP 1381720 A1 WO 02077080 A1 WO 02077335 A1	03-10-2002 03-10-2002 15-06-2004 15-06-2004 03-10-2002 03-10-2002 02-01-2004 21-01-2004 03-10-2002 03-10-2002
WO 02085983	A	31-10-2002	CA 2441781 A1 EP 1379590 A1 WO 02085983 A1	31-10-2002 14-01-2004 31-10-2002
EP 0890614	A	13-01-1999	JP 3051336 B2 JP 9255859 A JP 3149356 B2 JP 9267585 A JP 3378156 B2 JP 10157041 A EP 0890614 A1 US 6350530 B1 CA 2250165 A1 WO 9735922 A1 KR 2000005004 A	12-06-2000 30-09-1997 26-03-2001 14-10-1997 17-02-2003 16-06-1998 13-01-1999 26-02-2002 02-10-1997 02-10-1997 25-01-2000
EP 0450777	A	09-10-1991	JP 1882012 C JP 3290461 A JP 6023302 B JP 1846684 C JP 3290451 A JP 5077699 B DE 69119966 D1 DE 69119966 T2 EP 0450777 A2 US 5227415 A	10-11-1994 20-12-1991 30-03-1994 07-06-1994 20-12-1991 27-10-1993 11-07-1996 24-10-1996 09-10-1991 13-07-1993
WO 0250156	A	27-06-2002	AU 3129002 A BR 0116416 A CA 2427509 A1 CN 1481408 T EP 1345984 A2 WO 0250156 A2	01-07-2002 30-12-2003 27-06-2002 10-03-2004 24-09-2003 27-06-2002

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/004991

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0250156	A		US 2004059047 A1	25-03-2004
US 2002143116	A1	03-10-2002	BR 0208376 A	15-06-2004
			BR 0208377 A	15-06-2004
			CA 2440544 A1	03-10-2002
			CA 2440545 A1	03-10-2002
			EP 1373378 A1	02-01-2004
			EP 1381720 A1	21-01-2004
			WO 02077080 A1	03-10-2002
			WO 02077335 A1	03-10-2002
			US 2002143136 A1	03-10-2002
WO 02059201	A	01-08-2002	IT T020010061 A1	25-07-2002
			WO 02059201 A1	01-08-2002
US 6221316	B1	24-04-2001	DE 19755966 A1	01-07-1999
			BR 9805803 A	14-12-1999
			JP 11323114 A	26-11-1999
WO 9608535	A	21-03-1996	US 5939467 A	17-08-1999
			AT 195755 T	15-09-2000
			AU 2603299 A	08-07-1999
			AU 3589995 A	29-03-1996
			BR 9508946 A	21-10-1997
			DE 69518531 D1	28-09-2000
			DE 69518531 T2	19-04-2001
			DK 781309 T3	13-11-2000
			EP 0781309 A1	02-07-1997
			ES 2148560 T3	16-10-2000
			GR 3034202 T3	30-11-2000
			HK 1001400 A1	20-04-2001
			JP 10505872 T	09-06-1998
			JP 3447299 B2	16-09-2003
			PT 781309 T	29-12-2000
			WO 9608535 A1	21-03-1996
			ZA 9507861 A	06-06-1996
US 6191203	B1	20-02-2001	AU 1123099 A	24-05-1999
			EP 1027384 A2	16-08-2000
			WO 9923161 A2	14-05-1999
US 6228954	B1	08-05-2001	CA 2079274 A1	31-03-1993
			US 5320624 A	14-06-1994
			US 5475063 A	12-12-1995
			CA 2060635 A1	13-08-1992
			DE 69202584 D1	29-06-1995
			DE 69202584 T2	07-12-1995
			EP 0499204 A1	19-08-1992
			US 5674286 A	07-10-1997
DE 4300420	A	14-07-1994	DE 4300420 A1	14-07-1994
US 5646217	A	08-07-1997	AU 674361 B2	19-12-1996
			AU 5426894 A	08-06-1994
			CA 2147857 A1	26-05-1994
			EP 0669959 A1	06-09-1995
			FI 952162 A	05-05-1995
			WO 9411440 A2	26-05-1994

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No.

PCT/US2004/004991

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5646217	A	JP NO 8503500 T 951766 A	16-04-1996 05-05-1995
WO 9510577	A 20-04-1995	AT 187477 T AU 689130 B2 AU 7604894 A CA 2173753 A1 DE 69422053 D1 DE 69422053 T2 EP 0723572 A1 JP 9505615 T WO 9510577 A1 US 6365680 B1 US 5700344 A US 5753724 A	15-12-1999 26-03-1998 04-05-1995 20-04-1995 13-01-2000 29-06-2000 31-07-1996 03-06-1997 20-04-1995 02-04-2002 23-12-1997 19-05-1998
WO 0228969	A 11-04-2002	AU 9699601 A CN 1468284 T EP 1325079 A2 JP 2004510868 T WO 0228969 A2 US 2003204027 A1	15-04-2002 14-01-2004 09-07-2003 08-04-2004 11-04-2002 30-10-2003
EP 1193294	A 03-04-2002	JP 2002173589 A EP 1193294 A2 US 2002065345 A1	21-06-2002 03-04-2002 30-05-2002

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

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# PCT

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/US2004/004991

International filing date (day/month/year)  
20.02.2004

Priority date (day/month/year)  
21.02.2003

International Patent Classification (IPC) or both national classification and IPC  
C09J167/04, C08L67/04

Applicant  
METABOLIX INC.

### 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

### 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/US2004/004991

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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**Box No. II Priority**

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1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

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**Box No. V Reasoned statement under Rule 43bis.1(a)(I) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	50,51,83
	No: Claims	1-49,52-82
Inventive step (IS)	Yes: Claims	
	No: Claims	1-83
Industrial applicability (IA)	Yes: Claims	1-83
	No: Claims	

2. Citations and explanations

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

Cf V:

Reference is made to the following documents:

- D1: IANNACE S ET AL: "POLY(3-HYDROXYBUTYRATE)-CO-(3-HYDROXYVALERATE)/POLY-L-LACTIDE BLENDS: THERMAL AND MECHANICAL PROPERTIES" JOURNAL OF APPLIED POLYMER SCIENCE, JOHN WILEY AND SONS INC. NEW YORK, US, vol. 54, no. 10, 5 December 1994 (1994-12-05), pages 1525-1535, XP000514124 ISSN: 0021-8995
- D2: US-A-5 191 037 (DOI YOSHIHARU ET AL) 2 March 1993 (1993-03-02)
- ✓ D3: MIGUEL O ET AL: "Blends of bacterial poly(3-hydroxybutyrate) with synthetic poly(3-hydroxybutyrate) and poly(epichlorohydrin): transport properties of carbon dioxide and water vapour" POLYMER, ELSEVIER SCIENCE PUBLISHERS B.V, GB, vol. 42, no. 3, February 2001 (2001-02), pages 953-962, XP004218064 ISSN: 0032-3861
- D4: MALLARDE D ET AL: "Hydrolytic degradability of poly(3-hydroxyoctanoate) and of a poly(3-hydroxyoctanoate)/poly(R,S-lactic acid) blend" POLYMER, ELSEVIER SCIENCE PUBLISHERS B.V, GB, vol. 39, no. 15, 1 July 1998 (1998-07-01), pages 3387-3392, XP004122248 ISSN: 0032-3861
- D5: TSUJI H ET AL: "BLENDS OF CRYSTALLINE AND AMORPHOUS POLY(LACTIDE). III. HYDROLYSIS OF SOLUTION-CAST BLEND FILMS" JOURNAL OF APPLIED POLYMER SCIENCE, JOHN WILEY AND SONS INC. NEW YORK, US, vol. 64, no. 7, 14 February 1997 (1997-02-14), pages 855-863, XP000722889 ISSN: 0021-8995
- D6: HIDEKI ABE ET AL: "SYNTHESIS AND CHARACTERIZATION OF POLYU(R,S)-3-HYDROXYBUTYRATE-B-L-HYDROXYHEXANOATE AS A COMPATIBILIZER FOR A BIODEGRADABLE BLEND OF POLYU(R)-3-HYDROXYBUTYRATE AND POLY(6-HYDROXYHEXANOATE)" MACROMOLECULES, AMERICAN CHEMICAL SOCIETY. EASTON, US, vol. 27, no. 21, 10 October 1994 (1994-10-10), pages 6012-6017, XP000474772 ISSN: 0024-9297
- D7: EP-A-0 826 803 (TAKASAGO PERFUMERY CO LTD) 4 March 1998 (1998-03-04)
- D8: SCANDOLA M ET AL: "POLYMER BLENDS OF NATURAL POLY(3-HYDROXYBUTYRATE-CO-3-HYDROXYVALERATE) AND A SYNTHETIC ATACTIC POLY(3-HYDROXYBUTYRATE). CHARACTERIZATION AND



BIODEGRADATION STUDIES" MACROMOLECULES, AMERICAN  
CHEMICAL SOCIETY. EASTON, US, vol. 30, no. 9, 5 May 1997 (1997-05-  
05), pages 2568-2574, XP000688331 ISSN: 0024-9297

D9: US-A-5 693 389 (LIGGAT JOHN JAMIESON) 2 December 1997 (1997-12-  
02)

D10: WO 02/077080 A (PROCTER & GAMBLE) 3 October 2002 (2002-10-  
03)

D11: WO 02/085983 A (DU PONT ; FUGULY GARRET D (US)) 31 October  
2002 (2002-10-31)

D12: EP-A-0 890 614 (GUNZE KK) 13 January 1999 (1999-01-13)

D13: EP-A-0 450 777 (AGENCY IND SCIENCE TECHN) 9 October 1991  
(1991-10-09)

WO 02/50156 A (MELIK DAVID HARRY ; SATKOWSKI MICHAEL  
MATTHEW (US); AUTRAN JEAN-PHILIP) 27 June 2002 (2002-06-27)

D15: US 2002/143116 A1 (MELIK DAVID HARRY ET AL) 3 October 2002  
(2002-10-03)

D16: WO 02/059201 A (PONTI ROBERTO ; BASTIOLI CATIA (IT);  
GUANELLA ITALO (IT); NOVAMONT SPA) 1 August 2002 (2002-08-  
01)

US-B-6 221 3161 (SCHECKLIES ELVIRA ET AL) 24 April 2001 (2001-  
04-24)

D18: WO 96/08535 A (PROCTER & GAMBLE) 21 March 1996 (1996-03-21)

US-B-6 191 2031 (PIERRE JEAN R ET AL) 20 February 2001 (2001-  
02-20)

D20: US-B-6 228 9541 (MUTH ROSS R ET AL) 8 May 2001 (2001-05-08)

D21: DE 43 00 420 A (BASF AG) 14 July 1994 (1994-07-14)

D22: US-A-5 646 217 (HAMMOND TIMOTHY) 8 July 1997 (1997-07-08)

D23: WO 95/10577 A (FULLER H B LICENSING FINANC) 20 April 1995  
(1995-04-20)

D24: WO 02/28969 A (AUTRAN JEAN PHILIPPE MARIE ; PROCTER &  
GAMBLE (US)) 11 April 2002 (2002-04-11)

D25: EP-A-1 193 294 (TOHCELLO CO LTD) 3 April 2002 (2002-04-03)

**Article 33(2) PCT:**

**Claim 1** discloses a blend of PHAs.

**Document D1** discloses the same combination of technical features as disclosed in **claim 1** (pages 1525-1535).

The same remark applies also to **documents D2** (column 1; lines 24 to 26, column 2; lines 3 to 20, claims and examples), **D3** (pages 953-962), **D4** (pages 3387-3392), **D5** (pages 855-863), **D6** (tables and related text), **D7** (page 2; line 51 to page 3; line 26, claims and examples), **D8** (page 2568; right column to page 2569; left column, table 1), **D9** (column 1; lines 6 to 27, column 1; line 38 to column 2; line 55; claims and examples), **D10** (claims examples 1-2), **D11** (page 3; line 7 to page 5; line 19, page 7; lines 10 to 22, claims and examples), **D12** (page 3; lines 3 to 22, claims and examples), **D13** (column 1; lines 31 to 55, column 4; lines 20 to 28, claims, examples 1,2, column 1, lines 21 to 26), **D14** (page 3; lines 6 to 9, lines 20 to 22, page 9; lines 2 to 11, line 26, page 14; lines 25 to 27, claims, examples), **D15** (§ 10, 46, claims, examples), **D16** (pages 3-4, page 6; § 4, claims), **D17** (claims, examples, column 2; lines 16 to 51) and **D18** (page 43; line 25 to page 44; line 29).

Thus, the subject matter of **claim 1** does not meet the requirements of Article 33(2) PCT.

The same considerations apply to the subject matter of **claims 59, 64 and 80** as well as to the subject matter of dependent **claims 2 to 49, 52 to 58, 82, 60 to 63, and 65 to 79** which contain merely conventional embodiments of respectively **claims 1, 59 and 64**.

**Claim 81:**

**Claim 81** discloses an adhesive blend composition.

**Document D23** discloses the same combination of technical features as disclosed in **claim 1** (page 2, line 32 to page 3; line 10, tables 1 to 3).

The same remark applies also to **document D25** (§ 7-13, page 4, lines 19 to 21).

Thus, the subject matter of **claim 81** does not meet the requirements of Article 33(2) PCT.

**Claim 83:**

None of the documents discloses the same combination of features as disclosed in **claim 83**.

Thus, the subject matter of **claim 83** meets the requirements of Article 33(2) PCT.

The same remark applies also to **claims 50 and 51**.

**Article 33(3) PCT:**

**Claims 1 to 49, 52 to 82:**

The subject matter of **claims 1 to 49, 52 to 82** does not meet the requirements of Article 33(3) PCT.

**Claims 83, 50 and 51:**

**Document D14** is considered as representing the closest prior art. The difference between **D14** and **claim 83**, is that, in **D14**, the copolymer contains only two comonomers instead of three. Since there are no examples in accordance with **claim 83**, only examples with copolymers containing only two comonomers being disclosed, there is no technical effect related to such difference.

Thus, such difference cannot represent any inventive step.

Therefore, the subject matter of **claims 83, 50 and 51** does not meet the requirements of Article 33(3) PCT.

**Article 33(4) PCT:**

The subject matter of **all claims** is capable of industrial applicability.

**Cf VIII:**

**Claims 1, 59, 64, 81 and 83** are not clear since the characterization of the blend by its mechanical properties is not clear. The conditions for measuring such properties are not indicated in the claims and furthermore represent merely the technical goal to be achieved. Furthermore, there is no type of difference indicated between the two PHAs. Thus, only, the chemical composition, the molecular weight and the crystallinity could make a difference between the two PHAs and will be taken into account. Regarding the Hansen parameter and the thermal properties, such differences are rather based on the chemical composition. It is also to be pointed out that the PHAs disclosed in the examples are different due to different chemical compositions.